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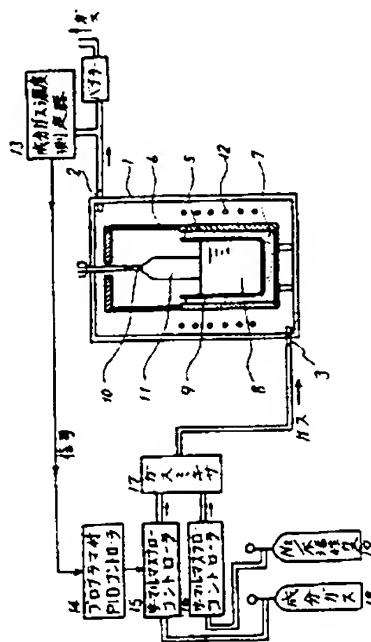
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TITLE : SINGLE CRYSTAL PULLING UP APPARATUS



ABSTRACT : PURPOSE: To keep the component concentration always at an optimum value and obtain a high-quality single crystal, by providing a gas sensor for measuring the component gas concentration and a mechanism capable of automatically controlling the component concentration in an inflow gas according to signals thereof.

CONSTITUTION: In a single crystal pulling up apparatus for growing a single crystal in a gas stream, component gas detection signals given from a component gas concentration measuring instrument 13 are compared with program signals to drive a thermal mass flow controller 15 for inflow of a component gas by a PID controller 14 with a programmer. The component gas is mixed with a large volume of nitrogen or an inert gas from the thermal mass flow controller 16 and fed to a crystal growth apparatus. In this crystal pulling up apparatus, the component concentration in the discharge gas is detected and thereby the volume of the inflow component can be controlled to ensure the component concentration required for the crystal growth. Accordingly, this apparatus is effective in all cases where crystals in which minor components contained in an atmospheric gas have a serious influence on properties of the grown crystals.

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